

CLAIM AMENDMENTS

1 1. (Currently Amended) A positioner for moving an E-block and a data transducer of a
2 disk drive relative to a storage disk, the E-block having a longitudinal axis, the positioner
3 comprising:

4 a magnet assembly producing a magnetic field; and
5 a coil array that couples to the E-block and is positioned near the magnet assembly, the
6 coil array being a generally D-shaped loop including a first segment and a second segment that
7 are adjacent to one another, the first segment being that is positioned substantially perpendicular
8 to the longitudinal axis of the E-block and, the first segment being adapted to interact with the
9 magnetic field to move the E-block relative to the storage disk, and the second segment being
10 curved where it intersects the longitudinal axis.

1 2. (Original) The positioner of claim 1 wherein the first segment is substantially linear.

1 3. (Original) The positioner of claim 2 wherein the first segment includes (i) a first
2 portion positioned on one side of the longitudinal axis of the E-block, and (ii) a second portion
3 positioned on an opposite side of the longitudinal axis E-block, wherein the first and second
4 portions are adapted to interact with the magnetic field to move the E-block relative to the
5 storage disk.

1 4. (Original) The positioner of claim 3 wherein the first and second portions are
2 positioned substantially symmetrical relative to the longitudinal axis.

1 5. (Original) The positioner of claim 3 further comprising a control system, that directs
2 current to the coil array to electrically excite the first portion and the second portion, the
3 electrically excited first portion interacting with the magnetic field to generate a first force, and
4 the electrically excited second portion interacting with the magnetic field to generate a second
5 force.

1 6. (Original) The positioner of claim 5 wherein the first and second forces are
2 substantially parallel to the longitudinal axis, and wherein the first force is substantially equal in
3 magnitude and substantially opposite in direction to the second force.

1 7. (Original) The positioner of claim 3 wherein the magnet assembly includes an upper
2 magnet array and a lower magnet array, and wherein the first and second portions are positioned
3 substantially between the upper and lower magnet arrays.

1 8. (Original) The positioner of claim 3 wherein the first segment further includes a center
2 portion, the center portion being positioned between the first and second portions, the center
3 portion electrically connecting the first portion to the second portion, the center portion being
4 positioned such that the center portion does not substantially interact with the magnetic field
5 when the center portion is electrically excited.

1 9. (Currently Amended) The positioner of claim 3 wherein the coil array includes a
2 ~~second segment that is connected to the first segment, the second segment is being~~ positioned
3 relative to the magnet assembly such that the second segment does not interact with the magnetic
4 field when the second segment is electrically excited.

1 10. (Original) The positioner of claim 1 wherein the only portion of the coil array that
2 interacts with the magnetic field of the magnet assembly when the coil array is electrically
3 excited is positioned substantially perpendicular to the longitudinal axis of the E-block.

1 11. (Original) A head stack assembly including an E-block and the positioner of claim 1.

1 12. (Original) A disk drive including the positioner of claim 1.

1 13. (Currently Amended) A head stack assembly for moving a data transducer of a disk
2 drive relative to a target track of a storage disk, the head stack assembly comprising:
3 an E-block having a longitudinal axis;

4 a transducer assembly secured to the E-block, the transducer assembly including a data
5 transducer;

6 a positioner including (i) a magnet assembly producing a magnetic field, and (ii) a coil
7 array secured to the E-block and positioned near the magnet assembly, the coil array being a
8 generally D-shaped loop including ~~consisting of~~ a first segment and a second segment that are
9 adjacent to one another, wherein the first segment is substantially linear, the first segment
10 positioned substantially perpendicular to the longitudinal axis and includes, the first segment
11 including (i) a first portion, and (ii) a second portion, and the second segment forms an arc that
12 has a substantially continuous curvature and is curved where it intersects the longitudinal axis;
13 and

14 a control system that directs current to the coil array to move the data transducer relative
15 to the target track.

1 14. (Original) The head stack assembly of claim 13 wherein the control system (i) directs
2 current to the first portion to electrically excite the first portion, and (ii) directs current to the
3 second portion to electrically excite the second portion;

4 wherein (i) the electrically excited first portion interacts with the magnetic field to
5 generate a first force and (ii) the electrically excited second portion interacts with the magnetic
6 field to generate a second force; and

7 wherein (i) the first force is substantially equal in magnitude to the second force and (ii)
8 the first force is substantially opposite in direction to the second force.

1 15. (Original) The head stack assembly of claim 14 wherein the first and second forces
2 are substantially parallel to the longitudinal axis.

1 16. (Original) The head stack assembly of claim 15 wherein the first portion and the
2 second portion are positioned symmetrical to the longitudinal axis.

1 17. (Original) The head stack assembly of claim 16 wherein the first segment further
2 includes a center portion, the center portion being positioned between and connected to the first
3 portion and the second portion.

1 18. (Original) The head stack assembly of claim 17 wherein the center portion does not
2 substantially interact with the magnetic field.

1 19. (Original) A disk drive including a storage disk, a drive housing and the head stack
2 assembly of claim 16 movably secured to the drive housing.

1 20. (Currently Amended) A method for retrieving data from a target track on a rotating
2 storage disk of a disk drive, the method comprising the steps of:

3 providing an E-block with a longitudinal axis;

4 securing a transducer assembly to the E-block, the transducer assembly including a data
5 transducer;

6 providing a magnet assembly producing a magnetic field;

7 coupling a coil array to the E-block with the coil array being positioned near the magnet
8 assembly, the coil array being a generally D-shaped loop including a first segment and a second
9 segment that are adjacent to one another, the first segment including~~e~~consisting of (i) a first
10 portion, and (ii) a second portion ~~that forms an arc~~, the first and second portions being
11 perpendicular to the longitudinal axis, the first and second portions being positioned
12 symmetrically about the longitudinal axis, and the second segment forming an arc that has a
13 substantially continuous curvature and is curved where it intersects the longitudinal axis; and
14 directing current to the coil array to move the data transducer relative to the target track.

1 21. (Previously Presented) The method of claim 20 wherein directing current to the coil
2 array includes directing current to the first portion and the second portion to generate a first force
3 and a second force, respectively, wherein the first force is substantially equal in magnitude and
4 opposite in direction to the second force.

1 22. (Original) The method of claim 21 wherein the first force and the second force are
2 substantially parallel to the longitudinal axis.

1 23. (Currently Amended) A positioner for moving a data transducer relative to a storage
2 disk in a disk drive, the positioner comprising:

3 a magnetic assembly including an upper magnetic array and a lower magnetic array; and
4 a coil array between the magnetic arrays, wherein the coil array is a generally D-shaped
5 loop that includes consists of a first segment and a second segment that are adjacent to one
6 another, the first segment is substantially linear and the second segment forms an arc that has a
7 substantially continuous curvature and is curved where it intersects a longitudinal axis of a head
8 stack assembly that includes the data transducer.

1 24. (Previously Presented) The positioner of claim 23 wherein the first segment is linear.

1 25. (Currently Amended) The positioner of claim 24 wherein the first segment is
2 substantially perpendicular to the a longitudinal axis of a head stack assembly that includes the
3 data transducer.

1 26. (Previously Presented) The positioner of claim 25 wherein the second segment forms
2 an arc that is centered at a pivot center of the head stack assembly.

1 27. (Previously Presented) The positioner of claim 25 wherein the first and second
2 segments are positioned symmetrically about the longitudinal axis.

1 28. (Previously Presented) The positioner of claim 25 wherein the first segment includes
2 a first portion, a second portion and a center portion therebetween, the first and second portions
3 are positioned between the magnetic arrays, and the center portion is not positioned between the
4 magnetic arrays.

1 29. (Previously Presented) The positioner of claim 23 wherein the magnetic arrays each
2 include an inner side, an outer side, and a pair of side wings therebetween, the inner side faces
3 towards the data transducer and forms an arc, and the outer side faces away from the data
4 transducer.

1 30. (Previously Presented) The positioner of claim 29 wherein the inner side forms an arc
2 that is centered at a pivot center for the data transducer.

1 31. (Previously Presented) The positioner of claim 29 wherein the inner and outer sides
2 are curved with reverse concavity relative to one another.

1 32. (Currently Amended) The positioner of claim 29 wherein ~~the coil array includes the~~
2 first and second segments are adjacent to one another at~~and~~ a pair of corners ~~therebetween, and~~
3 ~~the corners are~~ disposed on opposite sides of ~~the~~ longitudinal axis of ~~a head stack assembly that~~
4 ~~includes the data transducer~~.

1 33. (Previously Presented) The positioner of claim 32 wherein the corners are
2 substantially aligned with the wings in a direction perpendicular to the longitudinal axis.

1 34. (Previously Presented) The positioner of claim 32 wherein the corners are not
2 substantially aligned with the wings in a direction parallel to the longitudinal axis.

1 35. (Currently Amended) The positioner of claim 23 wherein the magnetic arrays extend
2 a first distance parallel to ~~the~~ longitudinal axis of ~~a head stack assembly that includes the~~
3 ~~transducer~~, the coil array extends a second distance parallel to the longitudinal axis, and the first
4 distance is greater than the second distance.

1 36. (Currently Amended) The positioner of claim 23 wherein the magnetic arrays extend
2 a first distance perpendicular to ~~the~~ longitudinal axis of ~~a head stack assembly that includes the~~
3 ~~data transducer~~, the coil array extends a second distance perpendicular to the longitudinal axis,
4 and the first and second distances are essentially identical.

1 37. (Currently Amended) A positioner for moving a data transducer relative to a storage
2 disk in a disk drive, the positioner comprising:
3 a magnetic assembly including an upper magnetic array and a lower magnetic array;

4 a coil array between the magnetic arrays, wherein the coil array is a generally D-shaped
5 loop of wire wrapped into a plurality of turns that includes~~s~~consists of a first segment and a
6 second segment that are adjacent to one another, the first segment is substantially linear and the
7 second segment forms an arc that has a substantially continuous curvature and is curved where it
8 intersects a longitudinal axis of a head stack assembly that includes the data transducer; and
9 a control system that electrically excites the coil array to interact with a magnetic field of
10 the magnetic assembly.

1 38. (Previously Presented) The positioner of claim 37 wherein the first segment includes
2 a first portion, a second portion and a center portion therebetween, the first and second portions
3 are positioned between the magnetic arrays, and the center portion is not positioned between the
4 magnetic arrays.

1 39. (Currently Amended) The positioner of claim 37 wherein the magnetic arrays extend
2 a first distance parallel to the longitudinal axis ~~of a head stack assembly that includes the data~~
3 transducer, the coil array extends a second distance parallel to the longitudinal axis, and the first
4 distance is greater than the second distance.

1 40. (Currently Amended) The positioner of claim 37 wherein the magnetic arrays extend
2 a first distance perpendicular to the longitudinal axis ~~of a head stack assembly that includes the~~
3 data transducer, the coil array extends a second distance perpendicular to the longitudinal axis,
4 and the first and second distances are essentially identical.

1 41. (Currently Amended) A head stack assembly for moving a data transducer of a disk
2 drive relative to a target track of a storage disk, the head stack assembly comprising:
3 an E-block having a longitudinal axis;
4 a transducer assembly secured to the E-block, the transducer assembly including a data
5 transducer;

6 a positioner including (i) a magnet assembly producing a magnetic field, (ii) a coil array
7 secured to the E-block and positioned near the magnet assembly, the coil array being a generally
8 D-shaped loop including a first segment and a second segment that are adjacent to one another,
9 wherein the first segment is positioned substantially perpendicular to the longitudinal axis and
10 includes, the first segment including (i) a first portion, and (ii) a second portion, and the second
11 segment is curved where it intersects the longitudinal axis; and

12 a control system that directs current to the coil array to move the data transducer relative
13 to the target track;

14 wherein the control system (i) directs current to the first portion to electrically excite the
15 first portion, and (ii) directs current to the second portion to electrically excite the second
16 portion;

17 wherein (i) the electrically excited first portion interacts with the magnetic field to
18 generate a first force and (ii) the electrically excited second portion interacts with the magnetic
19 field to generate a second force; and

20 wherein (i) the first force is substantially equal in magnitude to the second force and (ii)
21 the first force is substantially opposite in direction to the second force.

1 42. (Previously Presented) The head stack assembly of claim 41 wherein the first and
2 second forces are substantially parallel to the longitudinal axis.

1 43. (Previously Presented) The head stack assembly of claim 42 wherein the first portion
2 and the second portion are positioned symmetrical to the longitudinal axis.

1 44. (Previously Presented) The head stack assembly of claim 43 wherein the first segment
2 further includes a center portion, the center portion being positioned between and connected to
3 the first portion and the second portion.

1 45. (Previously Presented) The head stack assembly of claim 44 wherein the center
2 portion does not substantially interact with the magnetic field.

1 46. (Previously Presented) A disk drive including a storage disk, a drive housing and the
2 head stack assembly of claim 43 movably secured to the drive housing.

1 47. (Currently Amended) A method for retrieving data from a target track on a rotating
2 storage disk of a disk drive, the method comprising the steps of:

3 providing an E-block with a longitudinal axis;

4 securing a transducer assembly to the E-block, the transducer assembly including a data
5 transducer;

6 providing a magnet assembly producing a magnetic field;

7 coupling a coil array to the E-block with the coil array being positioned near the magnet
8 assembly, the coil array being a generally D-shaped loop including a first segment and a second
9 segment that are adjacent to one another, the first segment including (i) a first portion, and (ii) a
10 second portion, the first and second portions being perpendicular to the longitudinal axis, the first
11 and second portions being positioned symmetrically about the longitudinal axis, and the second
12 segment being curved where it intersects the longitudinal axis; and

13 directing current to the coil array to move the data transducer relative to the target track,
14 wherein directing current to the coil array includes directing current to the first portion and the
15 second portion to generate a first force and a second force, respectively, wherein the first force is
16 substantially equal in magnitude and opposite in direction to the second force.

1 48. (Previously Presented) The method of claim 47 wherein the first force and the second
2 force are substantially parallel to the longitudinal axis.

1 49. (Currently Amended) A positioner for moving a data transducer relative to a storage
2 disk in a disk drive, the positioner comprising:

3 a magnetic assembly including an upper magnetic array and a lower magnetic array,
4 wherein the magnetic arrays each include an inner side, an outer side, and a pair of side wings
5 therebetween, the inner side faces towards the data transducer and forms an arc, the outer side
6 faces away from the data transducer, and the inner and outer sides are curved with reverse
7 concavity relative to one another; and

8 a coil array between the magnetic arrays, wherein the coil array is a generally D-shaped
9 loop that includes a first segment and a second segment that are adjacent to one another, the first
10 segment is positioned substantially perpendicular to a longitudinal axis of a head stack assembly
11 that includes the data transducer, and the second segment is curved where it intersects the
12 longitudinal axis.

1 50. (Currently Amended) A positioner for moving a data transducer relative to a storage
2 disk in a disk drive, the positioner comprising:

3 a magnetic assembly including an upper magnetic array and a lower magnetic array,
4 wherein the magnetic arrays each include an inner side, an outer side, and a pair of side wings
5 therebetween, the inner side faces towards the data transducer and forms an arc, and the outer
6 side faces away from the data transducer; and

7 a coil array between the magnetic arrays, wherein the coil array is a generally D-shaped
8 loop, and the coil array that includes first and second segments that are adjacent to one another at
9 and at a pair of corners therebetween, the first segment is positioned substantially perpendicular
10 to a longitudinal axis of a head stack assembly that includes the data transducer, the second
11 segment is curved where it intersects the longitudinal axis, and the corners are disposed on
12 opposite sides of the a longitudinal axis of a head stack assembly that includes the data
13 transducer.

1 51. (Previously Presented) The positioner of claim 50 wherein the corners are
2 substantially aligned with the wings in a direction perpendicular to the longitudinal axis.

1 52. (Previously Presented) The positioner of claim 50 wherein the corners are not
2 substantially aligned with the wings in a direction parallel to the longitudinal axis.

1 53. (Currently Amended) A positioner for moving a data transducer relative to a storage
2 disk in a disk drive, the positioner comprising:

3 a magnetic assembly including an upper magnetic array and a lower magnetic array; and
4 a coil array between the magnetic arrays, wherein the coil array is a generally D-shaped
5 loop, wherein that includes a first segment and a second segment that are adjacent to one another,

6 the first segment is positioned substantially perpendicular to a longitudinal axis of a head stack
7 assembly that includes the data transducer, the second segment is curved where it intersects the
8 longitudinal axis, the magnetic arrays extend a first distance perpendicular to thea longitudinal
9 ~~axis of a head stack assembly that includes the data transducer, the coil array extends a second~~
10 distance perpendicular to the longitudinal axis, and the first and second distances are essentially
11 identical.

1 54. (Currently Amended) A positioner for moving a data transducer relative to a storage
2 disk in a disk drive, the positioner comprising:

3 a magnetic assembly including an upper magnetic array and a lower magnetic array;
4 a coil array between the magnetic arrays, wherein the coil array is a generally D-shaped
5 loop of wire wrapped into a plurality of turns that includes a first segment and a second segment
6 that are adjacent to one another, the first segment is substantially linear and the second segment
7 forms an arc that is curved where it intersects a longitudinal axis of a head stack assembly that
8 includes the data transducer; and

9 a control system that electrically excites the coil array to interact with a magnetic field of
10 the magnetic assembly;

11 wherein the magnetic arrays extend a first distance perpendicular to thea longitudinal axis
12 ~~of a head stack assembly that includes the data transducer, the coil array extends a second~~
13 distance perpendicular to the longitudinal axis, and the first and second distances are essentially
14 identical.

1 55. (New) A positioner for moving an E-block and a data transducer of a disk drive
2 relative to a storage disk, the E-block having a longitudinal axis, the positioner comprising:

3 a magnet assembly producing a magnetic field; and

4 a coil array that couples to the E-block and is positioned near the magnet assembly, the
5 coil array being a generally D-shaped loop including a first segment that is positioned
6 substantially perpendicular to the longitudinal axis of the E-block, the first segment being
7 adapted to interact with the magnetic field to move the E-block relative to the storage disk,
8 wherein the first segment is substantially linear and includes (i) a first portion positioned on one
9 side of the longitudinal axis of the E-block, and (ii) a second portion positioned on an opposite
10 side of the longitudinal axis E-block, the first and second portions are adapted to interact with the
11 magnetic field to move the E-block relative to the storage disk, and the first segment further
12 includes a center portion, the center portion being positioned between the first and second
13 portions, the center portion electrically connecting the first portion to the second portion, the
14 center portion being positioned such that the center portion does not substantially interact with
15 the magnetic field when the center portion is electrically excited.

1 56. (New) A positioner for moving an E-block and a data transducer of a disk drive
2 relative to a storage disk, the E-block having a longitudinal axis, the positioner comprising:
3 a magnet assembly producing a magnetic field; and
4 a coil array that couples to the E-block and is positioned near the magnet assembly, the
5 coil array being a generally D-shaped loop including a first segment that is positioned
6 substantially perpendicular to the longitudinal axis of the E-block, the first segment being
7 adapted to interact with the magnetic field to move the E-block relative to the storage disk,
8 wherein the first segment is substantially linear and includes (i) a first portion positioned on one
9 side of the longitudinal axis of the E-block, and (ii) a second portion positioned on an opposite
10 side of the longitudinal axis E-block, the first and second portions are adapted to interact with the
11 magnetic field to move the E-block relative to the storage disk, and the coil array includes a
12 second segment that is connected to the first segment, the second segment being positioned
13 relative to the magnet assembly such that the second segment does not interact with the magnetic
14 field when the second segment is electrically excited.

1 57. (New) A head stack assembly for moving a data transducer of a disk drive relative to
2 a target track of a storage disk, the head stack assembly comprising:

3 an E-block having a longitudinal axis;

4 a transducer assembly secured to the E-block, the transducer assembly including a data

5 transducer;

6 a positioner including (i) a magnet assembly producing a magnetic field, (ii) a coil array

7 secured to the E-block and positioned near the magnet assembly, the coil array being a generally

8 D-shaped loop including a first segment positioned substantially perpendicular to the longitudinal

9 axis, the first segment including (i) a first portion, and (ii) a second portion; and

10 a control system that directs current to the coil array to move the data transducer relative

11 to the target track;

12 wherein the control system (i) directs current to the first portion to electrically excite the

13 first portion, and (ii) directs current to the second portion to electrically excite the second

14 portion;

15 wherein (i) the electrically excited first portion interacts with the magnetic field to

16 generate a first force and (ii) the electrically excited second portion interacts with the magnetic

17 field to generate a second force;

18 wherein (i) the first force is substantially equal in magnitude to the second force and (ii)

19 the first force is substantially opposite in direction to the second force;

20 wherein the first and second forces are substantially parallel to the longitudinal axis;

21 wherein the first portion and the second portion are positioned symmetrical to the

22 longitudinal axis;

23 wherein the first segment further includes a center portion, the center portion being

24 positioned between and connected to the first portion and the second portion; and

25 wherein the center portion does not substantially interact with the magnetic field.

1 58 (New) The positioner of claim 1, the head stack assembly of claim 13, the method of

2 claim 20, the positioner of claim 23, the positioner of claim 37, the head stack assembly of claim

3 41, the method of claim 47, the positioner of claim 49, the positioner of claim 50, the positioner

4 of claim 53 or the positioner of claim 54 wherein the first segment is linear.

1 59. (New) The positioner of claim 1, the head stack assembly of claim 13, the method of
2 claim 20, the positioner of claim 23, the positioner of claim 37, the head stack assembly of claim
3 41, the method of claim 47, the positioner of claim 49, the positioner of claim 50, the positioner
4 of claim 53 or the positioner of claim 54 wherein the second segment has a continuous curvature.

1 60. (New) The positioner of claim 1, the head stack assembly of claim 13, the method of
2 claim 20, the positioner of claim 23, the positioner of claim 37, the head stack assembly of claim
3 41, the method of claim 47, the positioner of claim 49, the positioner of claim 50, the positioner
4 of claim 53 or the positioner of claim 54 wherein the second segment forms an arc of a circle.

1 61. (New) The positioner of claim 1, the head stack assembly of claim 13, the method of
2 claim 20, the positioner of claim 23, the positioner of claim 37, the head stack assembly of claim
3 41, the method of claim 47, the positioner of claim 49, the positioner of claim 50, the positioner
4 of claim 53 or the positioner of claim 54 wherein the first segment is linear and the second
5 segment has a continuous curvature.

1 62. (New) The positioner of claim 1, the head stack assembly of claim 13, the method of
2 claim 20, the positioner of claim 23, the positioner of claim 37, the head stack assembly of claim
3 41, the method of claim 47, the positioner of claim 49, the positioner of claim 50, the positioner
4 of claim 53 or the positioner of claim 54 wherein the first segment is linear and the second
5 segment forms an arc of a circle.

1 63. (New) The positioner of claim 1, the head stack assembly of claim 13, the method of
2 claim 20, the positioner of claim 23, the positioner of claim 37, the head stack assembly of claim
3 41, the method of claim 47, the positioner of claim 49, the positioner of claim 50, the positioner
4 of claim 53 or the positioner of claim 54 wherein the coil array consists of the first and second
5 segments.

1 64. (New) The positioner of claim 1, the head stack assembly of claim 13, the method of
2 claim 20, the positioner of claim 23, the positioner of claim 37, the head stack assembly of claim
3 41, the method of claim 47, the positioner of claim 49, the positioner of claim 50, the positioner

4 of claim 53 or the positioner of claim 54 wherein the coil array consists of the first and second
5 segments and the first segment is linear.

1 65. (New) The positioner of claim 1, the head stack assembly of claim 13, the method of
2 claim 20, the positioner of claim 23, the positioner of claim 37, the head stack assembly of claim
3 41, the method of claim 47, the positioner of claim 49, the positioner of claim 50, the positioner
4 of claim 53 or the positioner of claim 54 wherein the coil array consists of the first and second
5 segments and the second segment has a continuous curvature.

1 66. (New) The positioner of claim 1, the head stack assembly of claim 13, the method of
2 claim 20, the positioner of claim 23, the positioner of claim 37, the head stack assembly of claim
3 41, the method of claim 47, the positioner of claim 49, the positioner of claim 50, the positioner
4 of claim 53 or the positioner of claim 54 wherein the coil array consists of the first and second
5 segments and the second segment forms an arc of a circle.

1 67. (New) The positioner of claim 1, the head stack assembly of claim 13, the method of
2 claim 20, the positioner of claim 23, the positioner of claim 37, the head stack assembly of claim
3 41, the method of claim 47, the positioner of claim 49, the positioner of claim 50, the positioner
4 of claim 53 or the positioner of claim 54 wherein the coil array consists of the first and second
5 segments, the first segment is linear and the second segment has a continuous curvature.

1 68. (New) The positioner of claim 1, the head stack assembly of claim 13, the method of
2 claim 20, the positioner of claim 23, the positioner of claim 37, the head stack assembly of claim
3 41, the method of claim 47, the positioner of claim 49, the positioner of claim 50, the positioner
4 of claim 53 or the positioner of claim 54 wherein the coil array consists of the first and second
5 segments, the first segment is linear and the second segment forms an arc of a circle.